



## Amendment to the Claims

Please cancel Claim 1 without prejudice.

Please add Claim 4-8.

5 Please amend Claims 2 and 3 as follows:

1. (canceled)

10 2. (currently amended) A computer implemented method for combining two or more risk models for providing an investor with ~~to create~~ a risk model with wider scope than its constituent parts, comprising the steps of said computer:

denoting a class of algorithms for constructing estimates of a covariance matrices from time histories of data;

denoting a class of asset classes;

15 denoting a class of multi-factor risk models; and

constructing risk models for each asset class as follows:

applying a method to estimate a covariance matrix from a history; and

20 combining asset class risk models to form and output a risk model with broad coverage that is consistent with each asset class model.

3. (currently amended) The computer implemented method of Claim 2, further comprising the step of:

applying a different method to estimate a covariance matrix from a history.

25 4. (new) A computer implement method for combining two or more risk models for providing an investor with a risk model with wider scope than its constituent parts, comprising the steps of said computer:

letting  $C_1$  denote a class of algorithms for constructing estimates of a covariance matrices from time histories of data;

30 letting  $C_2$  denote a class of asset classes;

for  $x$  in  $C_2$  let  $C_3(x)$ , denoting a class of multi-factor risk models for  $x$ ;

for  $y$  in  $C_3(x)$  denoting its parts as follows:

factor exposures  $X(y,t)$ :

factor returns  $f(y,t)$ ; and

specific covariance matrix  $D(y,t)$ :

giving the following components:

5        two or more asset classes  $x_1, \dots, x_n$ , let  $x$  denote an asset class which is a union of these given asset classes:

for each asset class  $x_i$  giving a risk model  $y_i$  in  $C_3(x_i)$ :

letting  $Y(t)$  be such that the decomposition

Q1

$$\begin{pmatrix} f(y_1 t) \\ f(y_2 t) \\ \vdots \\ f(y_N t) \end{pmatrix} = \begin{pmatrix} y_1(t) \\ y_2(t) \\ \vdots \\ y_N(t) \end{pmatrix} g(t) + \begin{pmatrix} \sum_1(t) \\ \sum_2(t) \\ \vdots \\ \sum_N(t) \end{pmatrix}$$

10         $f(t) \quad y(t) \quad \Sigma(t)$

which results in residuals  $\Sigma(t)$ , such that correlations  $(\Sigma_i(t), \Sigma_j(t)) = 0$  if  $i \neq j$ ; and

constructing a risk model for  $x$  as follows:

forming  $X(t) = \text{diag}(X(y_1, t), \dots, X(y_n, t))$ :

15        forming  $D(t) = \text{diag}(D(y_1, t), \dots, D(y_n, t))$ :

applying a method  $C_1$  to estimate a covariance matrix  $G(t)$  from a history of  $g(t)$ s; and

applying an optionally different method on  $C_1$  to estimate a covariance matrix  $\phi(t)$  from a history of the  $\Sigma(t)$ s;

20        wherein  $X(t)[Y(t)G(t)Y(t)' + \phi(t)]X(t)' + D(t)$  is a risk model for  $x$ .

5. (new) A system for combining two or more risk models for providing an investor with a risk model with wider scope than its constituent parts, comprising:

computer means for denoting a class of algorithms for constructing estimates of a covariance matrices from time histories of data;

computer means for denoting a class of asset classes;

computer means for denoting a class of multi-factor risk models; and

computer means for constructing risk models for each asset class as follows:

applying a method to estimate a covariance matrix from a history; and

combining asset class risk models to form and output a risk model with broad coverage that is consistent with each asset class model.

6. (new) The system of Claim 5, further comprising:

computer means for applying a different method to estimate a covariance matrix from a history.

7. (new) A computer program product comprising a computer useable medium having control logic stored therein for causing a computer to combine two or more risk models for providing an investor with a risk model with wider scope than its constituent parts, comprising:

computer readable program code means for causing the computer to denote a class of algorithms for constructing estimates of a covariance matrices from time histories of data;

computer readable program code means for causing the computer to denote a class of asset classes;

computer readable program code means for causing the computer to denote a class of multi-factor risk models; and

computer readable program code means for causing the computer to construct risk models for each asset class as follows:

applying a method to estimate a covariance matrix from a history; and

combining asset class risk models to form and output a risk model with broad coverage that is consistent with each asset class model.

8. The method of Claim 7, further comprising the step of:

applying a different method to estimate a covariance matrix from a history.